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Conference Abstract

The CDM Applied: Handling of Names, Taxa and Concepts in a Conservation Context

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Abstract

One of the major design features of the Common Data Model (CDM) is the ability to store and handle taxonomic concepts (a.k.a. “potential taxa” -Berendsohn 1995 , “taxonyme” -Koperski et al. 2000, "Assertions" - Pyle 2004, "taxonomic entities" -Kennedy et al. 2005 “taxon circumscriptions”, etc.).

A major driver of the critical appreciation of the concept problem in databases has been the conservation community. Progress in taxonomy may rapidly erode the validity of taxon-name based species conservation information. For example, in the context of periodic publication of Red Lists the tracing of changes in the circumscription, which may directly impact the conservation status of a group of organisms. So it is not a coincidence that the Federal German Agency for Nature Conservation (BfN) has been an important funder or projects aimed at further investigating and solving this problem Koperski et al. 2000, Berendsohn et al. 2003, Baumann et al. 2012). The president of the agency stated this as follows: "Information systems on plant or animal biodiversity are basic tools for effective nature conservation. .... Factual information about plants or animals are linked to their scientific name. ... when merging taxon-related information from a lot of sources we not only need to know how to handle synonymies, but also the different taxonomic concepts

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related to these names and the rules for transmitting factual information from one taxonomic concept to the other" (Vogtmann 2003).

The problem is particularly evident when dealing with Red Lists of organisms. Since 1971 the BfN regularly publishes Red Lists, the aim is to publish those in 10-year intervals. These are lists of taxa (normally species) with data on their conservation status - including the assigned category of threat (from extinct to unproblematic), further specification of risk factors for threatened species, distribution information, Germany's responsibility for the conservation of the taxon, etc. (Binot-Hafke et al. 2009). A particularity of the German lists is that they are aiming to list all organisms, including those not (currently) threatened. The lists contain an expert assessment of trends (e.g. in population sizes etc.) that may indicate future changes in conservation status (Ludwig et al. 2009), but their editions themselves allow to compute trends over time - that is, if the taxon concept denoted by the name is stable, or if we know how concepts in both lists relate to each other.

In the context of the "Red Lists 2020" project (2011-15), the German Red Lists held by the BfN have been imported into the EDIT Platform for Cybertaxonomy. The data are held in 3 Platform instances (databases), one for animals, one for plants and one for fungi (including lichens). Tools developed by BfN staff (G. Ludwig, pers. comm.) allowed to establish concept relations between the different editions - for example, the concepts from 8 publications (including floras) covering plants are included and inter-linked in the respective database. The BfN and the newly established German Red List Centre have decide to use the EDIT Platform to manage the taxonomy of Red Lists in Germany. A new project ("Kooperation Checklisten") will start to develop the tools for the handling of new editions of the checklists, among them a simplified checklist editor, a distribution data editor, and a concept-relation editor (including a wizard-like interface). These tools will be fully browser-based in order to allow wider participation in the editing process. Since conservation is legally a responsibility of the German states, an important issue is to trace and document not only taxon state-level distribution, but also concept differences of checklists used by the state governments against the federal list. A joint management of the taxonomy, allowing differing concepts (and legal applications of names) is seen as a means to further develop consensus about the classification of German organisms, including the necessary updates brought about by new knowledge.

Keywords

EDIT Platform, Taxonomy, Conservation, Checklists

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Grant title

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Hosting institution

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